

NCHRP Project 23-09, “Scoping Study to Develop the
Basis for a Highway Standard to Conduct an All-Hazards
Risk and Resilience Analysis”

IMPLEMENTATION AND COMMUNICATIONS PLAN

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Maria Pena
AEM Corporation
Herndon, VA

Mara K. Campbell
Jacobs
Dallas, TX

Suseel Indrakanti
Cambridge Systematics
Bethesda, MD

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Introduction

The primary objectives of the NCHRP Project 23-09, “Project, Scoping Study to Develop the Basis for a Highway Standard to Conduct an All-Hazards Risk and Resilience Analysis,” were to (1) develop a comprehensive and consistent set of risk and resilience (R&R) terminology, and to (2) formulate a research roadmap to establish a framework that supports quantitative assessments of all-hazard R&R for state and local transportation agencies. The results of NCHRP Project 23-09 will facilitate both of these objectives. This document identifies mechanisms and channels for communicating and implementing this research moving forward. It will identify the following:

- Actionable recommendations
- Opportunities to implement
- The need and priority for specific additional research concepts
- Immediate next steps to broadcast the results of the NCHRP 23-09 research efforts

This document recognizes planned and ongoing NCHRP efforts. It also identifies research opportunities that may be pursued by NCHRP, AASHTO, State Planning and Research (SPR) grants, pooled fund studies, University Transportation Centers, and other state-level research programs.

It is also recommended that this information be discussed via presentations to multiple AASHTO committees, subcommittees, and councils interested in this topic as well as with FHWA.

Actionable Findings and Recommendations

For additional research to be useful for transportation agencies, it should contain actionable findings and recommendations. Analytical risk assessment methods to support risk-based asset management processes are the best approach to support an all-hazards R&R analysis for the highway system. The research made actionable recommendations through three major roadmap themes that the RPSs were created to help address:

- **Organizational Development, Outreach, and Implementation.** Identify organizational development to create the framework as well as all the outreach and communication strategies and tasks for producing the framework. In addition, it also will include the implementation strategies for the successful adoption of the framework, and the activities to develop and maintain robust R&R training and capacity-building strategies.
- **Risk and Resilience (R&R) Assessment Processes.** Develop processes to identify the most critical highway infrastructure and threats to their system, assess the vulnerability of their system, and conduct a complete R&R analysis. In addition, transportation agencies need a comprehensive data collection plan to compile threat, asset, and event data to support and validate their R&R assessments.

- **Technology and Tools.** Identify or establish the appropriate tools to facilitate the incorporation of R&R methodologies within the different agency areas.

Opportunities to Implement

The research will likely be most helpful to agencies that need to adopt a Highway Risk and Resilience R&R Manual to conduct an All-Hazards Risk and Resilience (R&R) Assessment. These opportunities may include the following:

- Develop research problem statements (RPSs) that address the types of activities needed to support the development and adoption of an all-hazards risk and resilience analysis. These have been included in the *NCHRP Research Report 1014: Developing a Highway Framework to Conduct an All-Hazards Risk and Resilience Analysis* and should be considered for funding moving forward. The report also includes prioritization and customization of specific needs within the transportation community, as a result of agency maturity or other specific needs.
- Develop an outreach plan that describes channels, venues, and professional organizations that will share and market the research products, including summaries of the industry workshops, guidance, and RPSs. The following should be considered:
 - **AASHTO committees:** The AASHTO structure is such that it affects and supports all state DOTs. The different committees within AASHTO can effectively garner support to move these RPSs forward. The research team recommends enhancing collaboration with the following AASHTO committees and subcommittees: Committee on Performance-Based Management (CPBM), Subcommittee on Risk Management, and the Committee on Transportation System Security and Resilience (TSSR). Other committees and councils within AASHTO could benefit from this research, such as the Committee on Planning as well as the Highways and Streets Council.
 - **TRB committees:** The TRB comprises many committees that are interested in and support research within the realm of resiliency, including academia, consultants, government officials, and other transportation professionals. The following committees can share the findings:
 - AEP10 – Transportation Planning Policy and Processes
 - AJE10 – Strategic Management
 - AJE20 – Performance Management
 - AJE30 – Transportation Asset Management
 - AMR10 – Critical Transportation Infrastructure Protection
 - AMR20 – Disaster Response, Emergency Evacuations, and Business Continuity
 - AMR50 – Extreme Weather and Climate Change Adaptation
 - **State DOTs:** Each state DOT has interested staff and teams focused on resiliency. The products and results from this research should be forwarded to each state DOT for further consideration.
 - **FHWA:** Multiple resilience efforts have been initiated and conducted by FHWA. It is key to establish communication and collaboration strategies among TRB, AASHTO, state DOTs, and FHWA to streamline and optimize the development of R&R methodologies and tools as well as to emphasize the importance and facilitate the implementation of the R&R roadmap products.
- Develop an implementation and communications plan that describes goals, objectives, target audience, channels, tools, and key themes to educate the value of research products. Within the plan, various

types of communication methods such as newsletters, Podcasts, and other media are crucial for sharing the information that was gathered during this research.

- Development and dissemination of the final research roadmap to advance the preparedness of the transportation sector for emerging threats and increase the resilience of the transportation system.

Need and Priority for Additional Research Concepts

Research that builds on NCHRP Project 23-09 speaks to both the actionable findings of this project and an agency's most effective implementation opportunities. The RPSs identified in this research project should be contemplated moving forward and are organized into four categories:

- **Time-Sensitive.** These concepts may be useful for the upcoming NCHRP round and as such may need to be submitted in 2023.
- **Sequence Needed for Success.** These concepts build directly on the findings of this research and have similar approaches and lines of inquiry.
- **High-Value Assistance.** These concepts were suggested or inspired by participants in NCHRP Project 23-09 workshops as well as the project panel and could bring significant benefits to agencies in the areas discussed in this work.
- **Ongoing Efforts.** These concepts build on prior or current research efforts that relate to the areas discussed in this work.

Immediate Next Steps

The research team recommends the next steps:

- Present the Glossary of Terms for AASHTO to consider adopting.
- Confirm AASHTO support of RPSs.
- Identify champions (within the AASHTO committee structure) and map out the sequence for necessary funding.
- Create a team that initiates the implementation and communications plan and continues to elevate it until all RPS are underway.

Adoption of the research roadmap and development of the RPSs in NCHRP Research Report 1014 would be excellent next steps in the development and implementation of the Highway Risk and Resilience (R&R) Manual.

Conclusions

The framework and roadmap aim to guide the development of the necessary approach to achieve the adoption and implementation of the Highway Risk and Resilience (R&R) Manual. It is important to highlight the key elements or activities to ensure successful implementation:

- Establish a working group or task force to oversee the execution of the proposed R&R roadmap and products (e.g., R&R Highway Framework/Manual).
- Enhance communication and collaboration in the transportation industry to ensure and streamline the successful development and implementation of the R&R framework/manual and associated products.
- Enhance continuous communication and collaboration among the principal investigators (PIs) of the different projects on the proposed research roadmap to ensure consistency and continuity of the projects.
- Ensure past and ongoing research in the area of risk and resilience is streamlined and incorporated into the development of the proposed roadmap products to reduce duplication and improve consistency.
- It is important to recognize that due to the long-term timeframe of the roadmap, it is an interactive process where communication with the different parties involved in the projects may need to respond to continuous feedback.